

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**REQUEST FOR ACCESS TO AN ABANDONED APPLICATION UNDER 37 CFR 1.14**

Bring completed form to:

File Information Unit

Crystal Plaza Three, Room 1D01

2021 South Clark Place

Arlington, VA

Telephone: (703) 308-2733

In re Application of

Application Number

Filed

08/049147

4/19/93

Paper No.

21

I hereby request access under 37 CFR 1.14(a)(1)(iv) to the application file record of the above-identified ABANDONED application, which is identified in, or to which a benefit is claimed, in the following document (as shown in the attachment):

United States Patent Application Publication No. 5843023 page, \_\_\_\_\_ line \_\_\_\_\_

United States Patent Number \_\_\_\_\_, column \_\_\_\_\_, line, \_\_\_\_\_ or

WIPO Pub. No. \_\_\_\_\_, page \_\_\_\_\_, line \_\_\_\_\_

**Related Information about Access to Pending Applications (37 CFR 1.14):**

Direct access to pending applications is not available to the public (see 37 CFR 1.14(c) if applicant) but copies may be available and may be purchased from the Office of Public Records upon payment of the appropriate fee (37 CFR 1.19(b)), as follows:

For published applications that are still pending, a member of the public may obtain a copy of:

- the file contents;
- the pending application as originally filed; or
- any document in the file of the pending application.

For unpublished applications that are still pending:

- (1) If the benefit of the pending application is claimed under 35 U.S.C. 119(e), 120, 121, or 365 in another application that has: (a) issued as a U.S. patent, or (b) published as a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of:
  - the file contents;
  - the pending application as originally filed; or
  - any document in the file of the pending application.
- (2) If the application is incorporated by reference or otherwise identified in a U.S. patent, a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of:
  - the pending application as originally filed.

Darlene Jones  
Signature

12-14-05  
Date

DARLENE JONES  
Typed or printed name

\_\_\_\_\_  
Registration Number, if applicable

703 418 0330  
Telephone Number

FOR PTO USE ONLY

Approved by:

(Initials)

Unit:

This collection of information is required by 37 CFR 1.14. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **BRING TO: File Information Unit, Crystal Plaza Three, Room 1D01, 2021 South Clark Place, Arlington, VA.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

## REQUEST FOR ACCESS TO AN ABANDONED APPLICATION UNDER 37 CFR 1.14

Bring completed form to:  
File Information Unit  
Crystal Plaza Three, Room 1D01  
2021 South Clark Place  
Arlington, VA  
Telephone: (703) 303-2733

RECEIVED

DEC 14 2005

File Information Unit

In re Application of

Application Number

Filed

08/049,147

4/19/93

Paper No.

#22

I hereby request access under 37 CFR 1.14(a)(1)(iv) to the application file record of the above-identified ABANDONED application, which is identified in, or to which a benefit is claimed, in the following document (as shown in the attachment):

United States Patent Application Publication No. \_\_\_\_\_, page, \_\_\_\_\_ line \_\_\_\_\_,

United States Patent Number 6,547,780, column \_\_\_\_\_, line, \_\_\_\_\_ or

WIPO Pub. No. \_\_\_\_\_, page \_\_\_\_\_, line \_\_\_\_\_.

### Related Information about Access to Pending Applications (37 CFR 1.14):

Direct access to pending applications is not available to the public but copies may be available and may be purchased from the Office of Public Records upon payment of the appropriate fee (37 CFR 1.19(b)), as follows:

For published applications that are still pending, a member of the public may obtain a copy of:

- the file contents;
- the pending application as originally filed; or
- any document in the file of the pending application.

For unpublished applications that are still pending:

- (1) If the benefit of the pending application is claimed under 35 U.S.C. 119(e), 120, 121, or 365 in another application that has: (a) issued as a U.S. patent, or (b) published as a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of:

- the file contents;
- the pending application as originally filed; or
- any document in the file of the pending application.

- (2) If the application is incorporated by reference or otherwise identified in a U.S. patent, a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of:

- the pending application as originally filed.

Aziah Testay

Signature

Aziah Testay

Typed or printed name

Registration Number, if applicable

703-486-1150

Telephone Number

12/14/05

Date

FOR PTO USE ONLY

RECEIVED

Approved by

DEC 14 2005

Unit

File Information Unit

(12) **United States Patent**  
Sinofsky

(10) Patent No.: **US 6,547,780 B1**  
(45) Date of Patent: **\*Apr. 15, 2003**

(54) **INFRARED LASER CATHETER SYSTEM**

(75) Inventor: **Edward Lawrence Sinofsky, Reading, MA (US)**

(73) Assignee: **CardioFocus, Inc., Norton, MA (US)**

(\*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/201,072**

(22) Filed: **Nov. 30, 1998**

**Related U.S. Application Data**

(63) Continuation of application No. 08/411,581, filed on Mar. 29, 1995, now Pat. No. 5,843,073, which is a continuation of application No. 08/049,147, filed on Apr. 19, 1993, now abandoned, which is a division of application No. 07/568,348, filed on Aug. 15, 1990, which is a continuation of application No. 07/257,760, filed on Oct. 14, 1988, now Pat. No. 4,950,266, which is a continuation of application No. 07/014,990, filed on Feb. 17, 1987, now abandoned, which is a continuation of application No. 06/761,188, filed on Jul. 31, 1985, now abandoned.

(51) Int. Cl.<sup>7</sup> ..... **A61B 18/28**

(52) U.S. Cl. .... **606/10; 606/3; 606/7; 606/13**

(58) Field of Search ..... **606/3, 7, 10-17**

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,751,584 A 3/1930 Hansell

3,327,712 A 6/1967 Kaufman  
3,533,707 A 10/1970 Weiss  
3,769,963 A 11/1973 Goldman et al.  
3,858,577 A 1/1975 Bass et al.

(List continued on next page.)

**FOREIGN PATENT DOCUMENTS**

EP 0144764 6/1985  
EP 0152766 8/1985

(List continued on next page.)

**OTHER PUBLICATIONS**

Abela, G. et al., "Effects of Carbon Dioxide, Nd-YAG, and Argon Laser Radiation on Coronary Atheromatous Plaques," *The American Journal of Cardiology*, vol. 50, No. 6, 1199-1205 (Dec. 1982).

(List continued on next page.)

*Primary Examiner*—David M. Shay

(74) *Attorney, Agent, or Firm*—Thomas J. Engellenner; Nutter McClennen & Fish LLP

(57) **ABSTRACT**

Laser energy produced by a laser operating in the mid-infrared region (approximately 2 micrometers) is delivered by an optical fiber in a catheter to a surgical site for biological tissue removal and repair. Disclosed laser sources which have an output wavelength in this region include: Holmium-doped Yttrium Aluminum Garnet (Ho:YAG), Holmium-doped Yttrium Lithium Fluoride (Ho:YLF), Erbium-doped YAG, Erbium-doped YLF and Thulium-doped YAG. For tissue removal, the lasers are operated with relatively long pulses at energy levels of approximately 1 joule per pulse. For tissue repair, the lasers are operated in a continuous wave mode at low power. Laser output energy is applied to a silica-based optical fiber which has been specially purified to reduce the hydroxyl-ion concentration to a low level. The catheter may be comprised of a single optical fiber or a plurality of optical fibers arranged to give overlapping output patterns for large area coverage.

**14 Claims, 6 Drawing Sheets**

